

Improved Automated Hydraulic Brake

Abstract

A brake actuating assembly for a wheeled vehicle having a hydraulically actuable service brake piston (15) for moving friction braking surfaces into a braking condition to arrest wheel rotation. An axially reciprocal cam member (23) has a first cam surface (61) for selectively moving the brake piston into the braking condition, and a second cam surface (63). One hydraulic circuit may be enabled to axially translate the cam member (23) from a brake released condition to a condition moving the brake piston (15) into the braking condition. Another hydraulic circuit may be enabled to axially translate the cam member from a condition moving the brake piston into the braking condition to a brake released condition. Each hydraulic circuit includes a hydraulic piston (25, 27) that engages a corresponding end of the cam member and responds to applied hydraulic pressure to translate the cam member. Each of the hydraulic circuits also includes a displacement piston (29, 31) that is resiliently biased to displace fluid away from the corresponding hydraulic piston subsequent to enablement of the corresponding hydraulic circuit. A resilient assembly

(19, 21) selectively engages the second cam surface (63) to move the cam member obliquely, e.g., perpendicular, to the direction of axial reciprocation during or subsequent to translation. Each of the hydraulic circuits further includes an electrically actuatable valve (37, 41) which selectively supplies pressure fluid from a source to the resilient assembly (19, 21) to move the resilient assembly away from the cam member (23) and to the hydraulic piston (25, 27) forcing the hydraulic piston to translate the cam member. Oblique cam member motion is effective at one extreme to establish the braking condition and at another extreme to establish the brake released condition.